

1106-VD-927 **David Plaxco*** (dplaxco@vt.edu). *John's Lemma: How One Student's Proof Activity Informed his Understanding of Inverse.*

Recent discussions in the field have explored the proofs' explanatory power. Such research, however, focuses on how a written proof might convey explanation. I present a conjecture that individual proof activity (the development of proofs) might, itself, have explanatory power. I then discuss one student's (John's) activity related to proving that the centralizer for a fixed element in a group (the set of elements that commute with the given element) is a subgroup and how this activity informed his understanding of inverse. During an individual interview, John developed a lemma claiming that the left- and right- inverses of an element are the same element, his proof of which contradicted his previous ways of thinking about inverse. I analyzed John's proof activity using Aberdein's (2006) extension of Toulmin's (1979) model for argumentation in order to better organize his activity, which provides an example of how proof activity might itself be explanatory. (Received September 08, 2014)